

Hobbies

WEEKLY

CONTENTS

	Page
Writing Desk - - -	225
Midget 3-Valve Radio -	227
Cycle Renovating -	228
Lineside Accessories -	229
Home Upholstery -	230
Hobbies in Pictures -	231
Clowning Properties -	232
Leather Writing Case -	233
Replies of Interest -	234
Time-table Holder -	235
Home Cements -	236
Skill for the Till -	236
Rebinding Old Books -	237
Railway Accessories	
Patterns	238

DESIGN SHEET FOR
DIAL TELEPHONE
MONEY BOX

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The Young Students WRITING DESK

HERE is an attractive little desk that would delight the heart of any young student. A most useful piece, too, to one just starting school, as most youngsters like to have their own books at home and have their own desk. It can be made a very attractive piece of furniture, as after it has been opened out and used as a writing desk, the top can be closed down and the front tipped up, making it appear as an ordinary little side table.

The illustrations in Fig. 1 show the desk in the two positions, closed and open. The height overall of the article is 30in., and the width about 19½in. The desk flap when let down makes a total depth of 13in.

Compact

It would here be advisable, perhaps, to explain the simple means of forming the writing space. This is really the front held to the floor of the desk by a pair of hinges, thus allowing it to tip up. The main top of the desk is hinged to the back of it and having a projecting lip glued along at the front underneath. This automatically holds the front of the desk securely when raised.

The simple outline diagram in Fig. 2 gives clearly the movement of the two parts in question, and also includes many measurements useful when setting out the parts. Some good pieces of deal would answer well for the desk if a better quality wood such as American whitewood is unobtainable. Boards ⅝in. thick are suggested for use throughout.

Main Frame

For the main sides (A) we want two pieces 30in. long by 9in. wide. The two main cross pieces (B) and (C), which hold the sides together, are 19½in. long, (B) being 4½in. wide and (C) 7¼in. wide.

Both these pieces are fitted into the sides by the open mortise and tenon joint, shown in detail in the constructional diagram, Fig. 3.

It will be found that this simple but strong joint can well be cut with the small tenon saw or the fretsaw. The mortises are, of course, cut with the latter tool and will be cut first before the tenons so the latter can each be marked off accurately to insure a perfect fit.

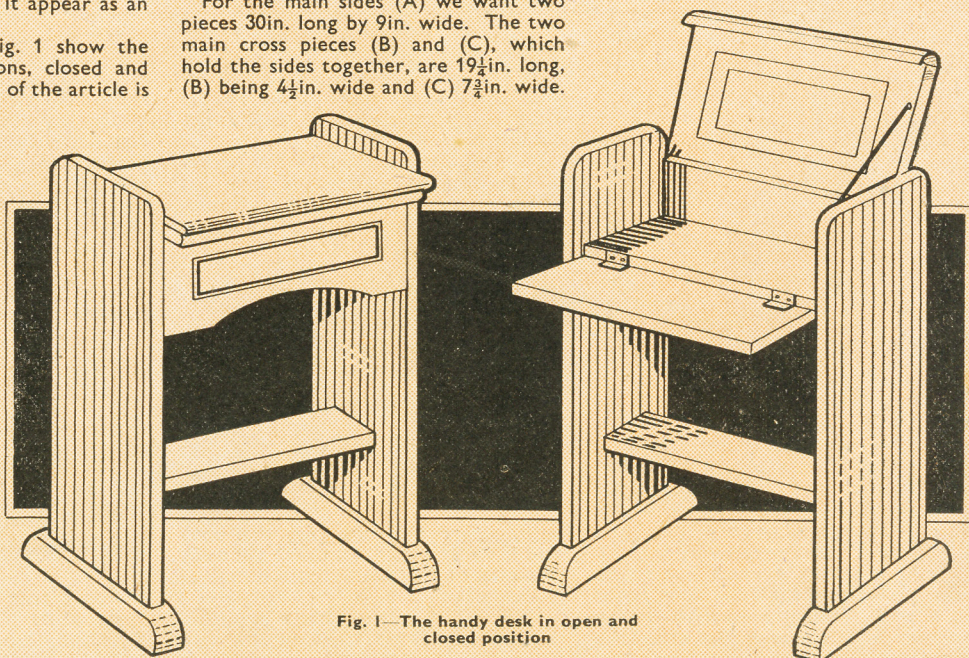


Fig. 1—The handy desk in open and closed position

All correspondence should be addressed to The Editor, Hobbies Weekly, Dereham, Norfolk.

When the tenons have been glued into the uprights some dowel pins may be driven in to strengthen the joint (see Fig. 3) where the shelf (C) is to run into the upright (A).

The back rail (E) fits between the two sides and is held by dowel pins driven through afterwards. Or the pins may be

length measurement is given for these, and a thicker piece of wood could be got for these than $\frac{3}{8}$ in. Then the dowel pins which hold them have a better fixing. See Fig. 3 for the method of fixing the dowels. Some workers may desire the simpler method of screwing.

The falling front (D) should next be

then be held against floor (C) and the screws put in to hold the front securely in place.

When the front is folded down it should appear as the dotted lines shown in Fig. 2.

The main top board, being 11 in. wide may be made of two widths of wood glued together. This joint may be further strengthened if two or more dowel pins could be glued in. The board is then 11 in. wide by 18 in. long and both its long edges should be rounded off neatly.

Recesses should be cut in the back rail (E) to take both flaps of the hinges. Then hold the top board in an upright position against rail (E) and mark on it where the recesses come. Next lay the top board in its final position and pencil a line on the underside along the edge of rail (E). This gives the proper position in which to place and fix the hinges.

It only remains now to screw the flaps of the hinges into the recesses. Clean up all surfaces of the finished desk with coarse and fine glasspaper. A coat or two of clear varnish makes a good finish, or ordinary paint or enamel would, perhaps, be better if deal or such like soft wood has been used.

A length of chain or a piece of strong webbing or tape may be put on to hold the lid at any required angle.

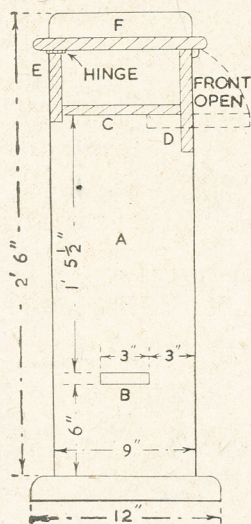


Fig. 2—Side elevation

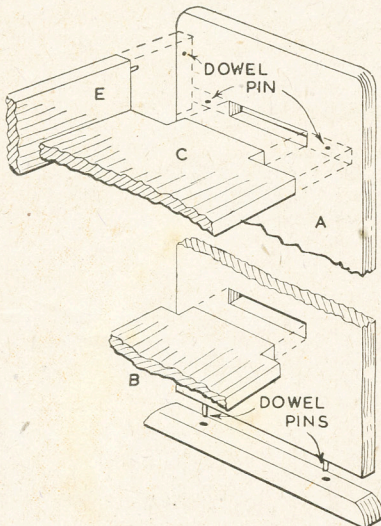


Fig. 3—Details of shelf and foot joints

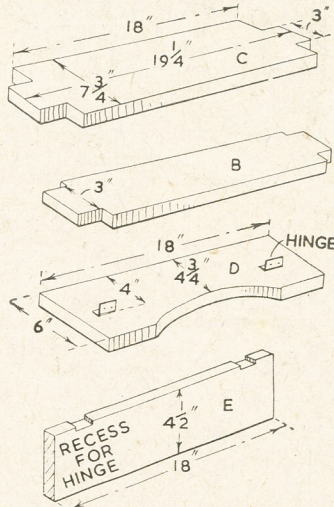


Fig. 4—Parts of the falling front portion

inserted in the rail (E) and the uprights (A) afterwards driven on. For simplicity, however, we suggest that the pins be driven through into the rail after (B) and (C) have been secured.

Be sure and bore holes with the twist bit and dip the dowels into glue before driving them home. Put screws through rail (E) into the floor (C).

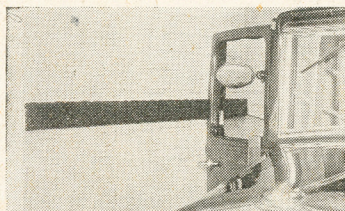
At this juncture the feet rails to the uprights (A) might be fixed on. The

prepared, and this piece, with the other cross rails, is shown in Fig. 4. Note the simple shaping to the lower edge of this rail. In getting the correct position for placing the hinges hold the prepared and finished rail (D) in its ultimate position with its top edge level with rail (E).

Mark in pencil where the underside of rail or floor (C) comes at the back of rail (D) and then fix on the hinges as shown at (D) in Fig. 4. The front may

Battens on Walls Prevent Damage

THESE photographs show instances of how useful wooden battens fixed to walls can be in preventing damage.



That in Fig. 1 is in a garage where a chimney breast projects into it, making it narrower at one place. When the car door is opened it will be damaged unless this batten, which is padded with cloth, is interposed to form a cushion. A simple but effective expedient.

Fig. 2 is where a cycle has to be continually rested against a certain spot on a wall. A neatly moulded batten (on the wall) prevents the otherwise unavoidable breaking away of the paint

and plaster. Painted to match the surrounding woodwork, it is quite unobtrusive.

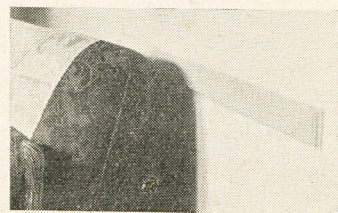
In the bathroom the idea also proves a valuable wall saver. It prevents damage from the stool, which has to remain in one place. Then over the



bath, where the soap tray and bath seat are often in contact with the wall, this also applies, unless the batten is interposed.

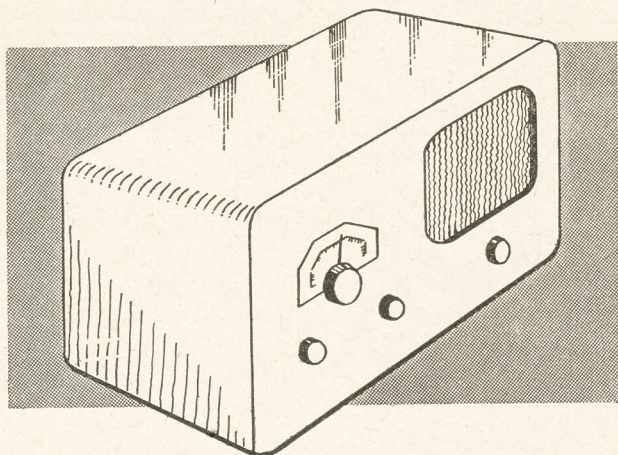
The idea has even been extended further in Fig. 3 to a drawing room wall where the proximity of an easy chair

has rubbed an unsightly line on the wall-paper, eventually tearing it away. A neat batten here has hidden this and prevented it increasing. Some may resent the intrusion of such an item into the drawing room but it is far less unsightly than the wear previously seen. In these days redecoration is often difficult and anything which helps to defer it is excusable. It will be seen that, when painted to match the wallpaper, its



presence is not too obvious. Naturally, it should be neatly fitted and painted. A finishing coat of Hard Gloss paint is advisable to withstand wear.

An interesting, compact and efficient MIDGET 3-VALVE RADIO



THE radio constructor who wishes to make a compact but efficient three valve receiver should find this design of particular interest. If some care is given to the cabinet-work, the completed set will look well, and the cabinet is actually made on very straightforward lines, in accordance with popular modern designs. The receiver itself uses three valves, thus assuring good volume even if the aerial used is short and poor, or no earth is available.

Circuit Details

The circuit in Fig. 1 shows three triode valves with a volume control used in conjunction with the second. The switch is a double-pole double-throw one with central off position. This, therefore, switches the set off, and provides long wave reception when turned one way, and medium wave reception when turned the other.

This allows the control knobs to be matched up more easily, though separate switches may be used for on/off and wavechange switching, if desired, thus increasing the number of controls to five. Alternatively, it is possible to obtain volume controls with internal switch.

The small knob under the speaker fret will then act as on/off and volume control. For the latter purpose the circuit proves very satisfactory because volume is adjustable from zero to maximum without any possibility of oscillation or other undesired effects and even the strongest local stations may be kept absolutely under control.

Quality Reproduction

Quality of reproduction is good and volume fully up to standard. Despite this, some latitude in the components used is permissible, and if near values are to hand, these can be tried. Beginning at the aerial, the .0001 mfd. condenser is

should not be modified unnecessarily. The 2 megohm leak is also generally best. If to hand, a small high frequency choke may be used instead of the 5,000 ohm resistor.

For the .01 condenser, a mica component is desirable; leakage here will cause distortion due to the high tension reaching the second valve grid. For the volume control, components between .25 and 1 megohm may be used, but .5 megohm is suggested as best if this part is to be bought.

Speaker

Any coupling transformer with a ratio of between 1:3 and 1:5 is suitable, but a cheap component will make itself felt in reduced efficiency.

For the speaker, a $4\frac{1}{2}$ in. or 5 in. model will be suitable, and a corner is cut off the receiver base-board (Fig. 2) to leave space for this. If a larger speaker is used, the dimensions of the cabinet will require modification,

tuning). With a very short or small indoor aerial it can be omitted; other values up to about .0003 mfd. may also be used, but larger values will flatten tuning.

For reaction, a .0003 mfd. condenser is shown, but a .0005 mfd. component can be used if to hand. For the grid condenser a value of .0002 mfd. is shown, and this value

but all other details may remain unchanged.

The speaker should be of the permanent magnet moving coil type, and must have the usual speaker matching transformer, which will be connected to terminal (P) on the right-hand valve-holder, and to High Tension positive.

Before cutting out the wood for the cabinet, it is wise to assure that the speaker and other parts actually to be used will fit in easily.

Wiring Up

A complete wiring plan is given in Fig. 2. All the parts should be fixed securely and all connections should be well made with insulated wire. The constructor who has not previously made a receiver and wishes for proper reception from the moment of switching on should follow the diagram carefully and check afterwards to assure all leads are as indicated.

The controls should be placed in the

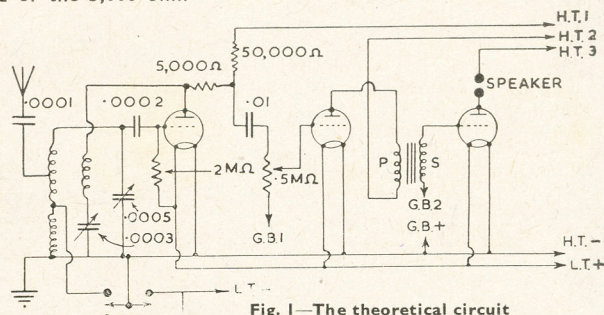


Fig. 1—The theoretical circuit

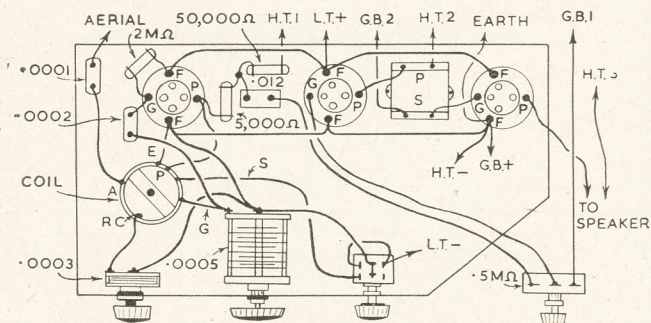


Fig. 2—A complete wiring plan

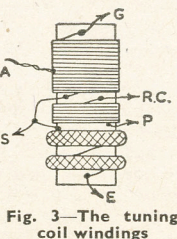


Fig. 3—The tuning coil windings

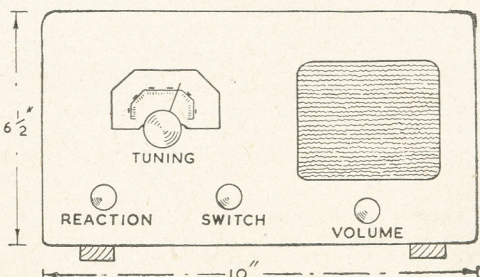


Fig. 4—Front view of the cabinet

positions shown and wired up. Afterwards the baseboard is pushed in at the back of the cabinet, when the control bushes will pass through holes in the cabinet front. Securing nuts are then added, and control knobs, as shown in Fig. 4.

Use lengths of flex for battery leads. These will afterwards be taken to suitable batteries. H.T.1 goes to about 72 to 90 volts; H.T.2 to between 90 and 120 volts, and H.T.3 to 120 volts. For G.B.1 about 1.5 to 4.5 volts grid bias will be required, and for G.B.2, 4.5 to 9 volts, depending upon valves. Choose the highest value of grid bias which does not cause distortion.

Valves to Use

There is no reason why any 2-volt triodes to hand should not be used, trying them in each holder to see which is best. For the left-hand holder a detector valve is best, such as the HL2 or its equivalents.

For the central holder, a low-frequency amplifying valve is recommended, such as the PM1LF. For output (right-hand holder) use a power or small-power valve. However, many types of valves will give excellent results, provided they

are in proper order and satisfactory.

Constructors wishing to wind their own coils should follow Fig. 3. The tube is $1\frac{1}{2}$ ins. in diameter. The ends of the windings are lettered to agree with Fig. 2, and are as follows: (G) to grid condenser; (A) to aerial condenser; (S) to switch; (E) to earth (H.T. negative); (P) to detector plate; (RC) to reaction condenser. All turns must be wound in the same direction.

Between points (G) and (S) wind on 84 turns of 32 S.W.G. enamelled wire, with the aerial tapping (A) made 30 turns from the lower end. Leave $\frac{1}{2}$ in. space and wind on 70 turns between (RC) and (P). As near the bottom of this winding as possible, commence to wind the two piles shown, each having 100 turns and ending at (E).

If to hand, wire of slightly different gauge may be used. The diameter of the tube can also be modified, but smaller tubes will require more turns, and vice versa. The finished coil is a push fit on a strip screwed to the baseboard.

Cabinet Details

The cabinet is $5\frac{1}{2}$ ins. deep, so the pieces used for top, bottom and sides should be this width. The top piece

should be 10 ins. long. Each side piece will be $6\frac{1}{2}$ ins. long, and the bottom (fitting inside so that the joints are not visible) will be $9\frac{1}{2}$ ins. long, presuming $\frac{3}{4}$ in. thick wood is used throughout. These parts should fit truly and the corners are rounded after the front, cut from 3-ply, has been fixed in position.

Variations

If thoroughly glasspapered, the cabinet will look well when given a coating of light varnish. Two strips, rounded at the front, form 'feet'. A piece of silk or similar material is stretched over the speaker cut-out behind. Many different types of reduction drives and tuning dials can be obtained, and if one of these is to hand the panel may be cut out accordingly. Alternatively, some tuning condensers have internal reduction drives, or a fairly large knob, with pointer, may be fitted directly to the component.

For the other controls, ordinary small knobs are required. These may be with or without pointers, as desired. The speaker is screwed to the rear of the cabinet front and short screws should be used so that they do not penetrate right through.

Points to go over when you undertake to RENOVATE THE CYCLE

PERHAPS a few words about the bicycle itself will not be out of place here. Naturally, you will not dream of going on tour again without first seeing to it that the machine, that is to carry you and your luggage, is in first-class condition. Winter evenings may be well spent in overhauling it.

It may require 'tuning-up' and renovating generally; maybe you will want it to look as good as new. If you are mechanically-minded it is no difficult task to strip your bicycle, removing everything that is removable—wheels, chain, handle-bars, brakes, etc. It is seldom really essential to remove front forks or back stays.

Clean thoroughly all the hubs and bearings with paraffin; allow them to dry well, and then wipe with a soft rag. By the way, when stripping a cycle, watch out that you do not lose any bolts, nuts, etc.; they have a habit of rolling around and hiding behind chair legs or under anything where there is sufficient space.

No Lost Nuts

It is amazing what antics a small nut can get doing! Therefore, spread a sheet of brown paper or newspaper—or an old piece of sacking—on the floor of the shed or room in which you are working, in order to trap any small parts that may become detached and are ready to set you on a merry hunt.

Put all the small loose parts in a box, so nothing is missing when the time

comes to re-assemble the machine.

Soak the chain in paraffin—an old tin will do to put the chain in, and cover with the oil. Afterwards take out the chain and remove all grit and dirt freed by the paraffin, using a small brush. When thoroughly cleaned, hang the chain up to drain. Before replacing it, treat with a lubricant of some kind, scrupulously wiping off all surplus, which, after all, will only attract more dust and grit again.

Plated Parts

Plated metal parts can be cleaned by any one of the usual preparations sold for such a purpose. Apply with a soft rag; rub vigorously, and polish off with a clean cloth or duster. A slight smearing of vaseline over the bright parts will help to preserve your work. If replating is necessary, this can only be done by the makers, and might mean a long spell of waiting, as most cycle firms have plenty of work on hand just now.

It is no great feat to redecorate your bicycle, however, and this will smarten it up for the tour in prospect. You can remove old enamel with a blow-lamp. Care should be exercised when burning the enamel around the top and bottom of the head, and the bottom bracket, in case the intense heat may lower the temper of the hardened steel bearing cups fixed in these parts of the machine.

If the old enamel is in pretty fair condition, however, you can go ahead without any blow-lamp. Just clean the

frame well, and see all is free of grit and dust. Bare patches should then be covered with a smearing of enamel and allowed to dry.

Then proceed with the job by rubbing down the whole with a little pumice-stone powder moistened, using a clean bit of rag. Dry thoroughly, and then apply the new enamel with a flat brush, working it as evenly as possible. A second coat may be necessary for a really good finish, but make sure the first coat is well dried and hard before you carry this out.

When handling the job, all lifting and moving should be done with wooden pegs into the down tube and the head of the frame. Avoid touching the frame with your hands until the enamel is set thoroughly hard.

Order of Re-Assembly

Re-assemble the machine by replacing the wheels first, with the tyres half-inflated. Be very careful about adjustments of brakes, three-speed gear, etc. Wheels must be so adjusted that they are in correct alignment, perfectly in track and quite straight. There should be no side play. Adjust the chain to the right tension, neither too tight nor too slack. When the machine is assembled again, give all bearings a spot of oil, and spin the wheels to work it in. Some cyclists lightly pack the bearings with a little grease; this especially refers to the pedals, which should be dismantled and packed with grease before re-assembling.

Full size patterns on page 238 for these model railway LINESIDE ACCESSORIES

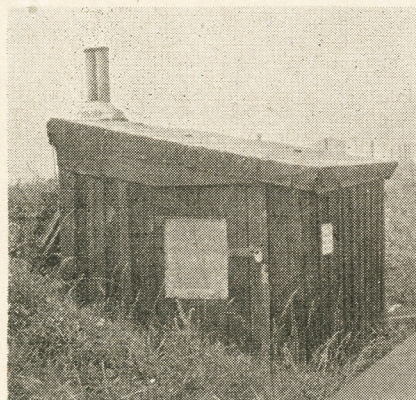
THERE are few things which give greater satisfaction and realism on a model railway—however small, for the amount of time spent on their construction, than simple lineside structures. These include such items as platelayers' huts of various types, contractors' huts, coal-yard offices and smaller types of goods sheds—such as those found in small country stations.

The construction of these little buildings—either in 'O' or 'OO' gauge is neither costly nor difficult, for card-board or thin wood scraps may be used for the basic material and the only tools required are an old safety-razor blade, a straight-edge and a tube of Secotone. The process of construction is perfectly simple, and should present no difficulties to even the beginner.

Two Main Points

In all model-building construction there are two main things to bear well in mind, viz., proper proportions—in respect to the scale to which the model is being built, and absolute squareness—everywhere, and at all times. Nothing looks worse on a layout than a 'drunken' model building, and the addition of any amount of super-detail will never completely disguise either a crooked or disproportionate structure.

Let us take for example the little Fog Hut shown in Fig. 1. This is quite a standard structure on almost all regions of British Railways, and although minor



A typical Platelayer's Hut

modifications do exist, it will be found that the general proportions are the same. Any alterations in detail can be found quite easily by having a look at a hut on the local branch, wherever that might be.

It will be seen that the hut consists of a piece of card (post-card will do quite well), bent as shown in Fig. 1a, and to which is fixed a slanting roof-piece, and a transverse seat. This is simplicity itself, and yet a half-a-dozen such huts syste-

matically placed about a layout, at junction signals and along 'country' branches near signals, will enhance the general appearance of the railway scene beyond belief.

Platelayer's Hut

Another ubiquitous lineside structure, which appears in scores of different types and sizes is the Platelayer's Hut. This is a permanent structure in every case, and should be placed at quite remote points from each other on a layout.

The shape differs very considerably according to the railway region and the per-group company by whom they were built. Some of the ultra-modern ones are constructed of reinforced concrete precastings, but from a spectacular point of view it will be found best to model the more 'rustic' types. In prototype practice these are built from old sleepers, with a tarred roof; very small, badly-glazed windows, and a door that boasts nothing more than a hasp and padlock in the way of details!

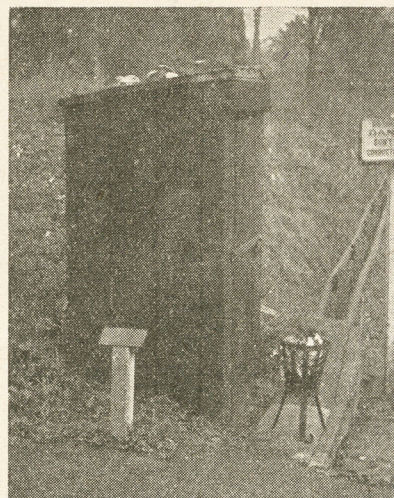
Fig. 2 shows the average dimensions of one such building, as well as the general disposition of door, brick chimney-stack and window. It must be appreciated, however, that there are no rules defining the positioning of any such details. It is a matter for simple deduction on the part of the builder.

The four walls are cut from one piece of card, being bent where shown dotted, the roof oversailing the sides and ends by about a scale 6in. The chimney-stack is made from a piece of scrap-wood being a scale 2ft. square. It is usually mounted against the rear wall, and the 'brick' portion should be made slightly higher than the front edge of the roof. The chimney-pot (on the real thing, usually a drainpipe) should be a scale 6in. in diameter (i.e., 2mm. in 'OO' scale or 3½mm. in 'O' gauge).

The hut should be finished off with a coat of flat matt black for the walls, brick-paper for the stack, yellow ochre for the chimney-pot. The roof is painted shiny black with silver sand sprinkled over it before it is dry. The door can be made to stand ajar by cutting round three sides of the opening and creasing and bending the door on the third side.

No base or 'bottom' is necessary, and the window may be subsequently 'glazed' with a piece of clear photographic film if desired, the panes being drawn in with indian ink on the inside of the celluloid.

Next, a Contractor's Hut (Fig. 3) which is a gabled structure easily convertible into a goods-yard Coal-Office. Here again, there is a great amount of freedom of design possible, and a pretty little building will be



A General Fog Hut

produced if care is taken to ensure that certain fundamental proportions are not exceeded.

A Coal Office

The sizes and markings for cutting-out and folding the four walls are shown, as well as the shape of the alternative roofs for use with Contractor's Hut and Coal-Office. If desired, the small corrugated paper from radio valve boxes or chocolate boxes may be used for the roof of either building. In the case of the Coal-Office roof, the firm's name should be written along the roof-board.

The finish of either building can be to taste, but do not make them look too 'new'. Try and get an aged effect by the judicious use of 'dirty' colours. In positioning the chimney, never make the mistake of placing it immediately behind the window, but always to one end or the other of the building; bearing in mind that the stove over which it is supposed to be is always situated against a wall.

General Notes

After being stuck together, and before painting, all the foregoing buildings should be liberally treated to two coats of shellac varnish, which can either be purchased at any ironmonger's shop, or made up by dissolving two ounces of shellac in about twice its bulk of methylated spirits. Use a bottle for the purpose, and keep the varnish from evaporating by fitting a really tight cork to the bottle.

When the varnish has been applied and is hard dry, painting with oil-colours may be carried out without any fear of the structure falling to pieces through the inroads of moisture in the wintertime. Get as realistic effect as possible in all your painting.

The second helpful article for the home handyman on HOME UPHOLSTERY

READERS who have followed the first article on this subject, may now care to carry it a stage further by learning how to upholster a spring seat. This is more difficult but a necessary branch of the work. The tools mentioned in the preceding article will suffice, with the addition of a regulator to manipulate the stuffing. This is a steel tapering rod, one end pointed and one flattened. Its use will be referred to in the article.

The frame of the chair is stripped and webbed, as previously described, but this time the webbing is tacked to the under side of the frame, not the top, to provide room for the springs. For a chair of the dining room pattern, four to five springs are usually enough, the former number being the most convenient.

Webbing and Springs

Arrange the webbing so each spring can 'sit' on the spot where the webbing crosses. A plan view of the seat, Fig. 1, will show this arrangement. If five springs seem necessary, as it may on an extra large seat, tack three strands of webbing from front to rear, the outer strands to converge a trifle towards each other at the back, and fit three springs in front and two at the rear. By converging the webbing, as suggested, the rear springs will then not be too far apart.

Special chair springs are used, these being a bit smaller than those employed for sofas and settees, naturally. If the old springs, taken from the chair, still preserve a reasonable degree of springiness they could be replaced, but if old and weak it is false economy, and new ones should be bought.

Stitch the Springs

The springs are fixed to the webbing with twine, a stitch being sewn through each side of the springs through the webbing. Here the curved needle, mentioned before, will be found invaluable, as it can be pushed through the webbing, under the spring, and will emerge the other side—no need to turn the chair over each time.

Let the stitches be tight over the springs, and do not cut the twine but carry on from one spring to another, and knot firmly at the last stitch of each spring. The springs must now be tied down a little to ease the strain on the canvas.

Fixing to Tacks

To do this drive a tack partly in the frame, top side, opposite a spring, tie the twine to it and drive the tack home to fix the twine. Tie the latter to the spring, pressing it down meanwhile with the hand, then tie it to the opposite spring and finally to a tack opposite the first one. Similar twine ties should be

made across the springs in the opposite direction, and care should be taken to get all at about the same height.

Canvas Covering

Now cut a piece of strong canvas, a trifle larger than the dimensions of the seat, and stretch it over the springs, taking it to the top edges of the frames, as in Fig. 2. Here, of course, the canvas covering is shown only partly over the springs, instead of covering them, so that the springs can be seen beneath, and the tying down just referred to better understood.

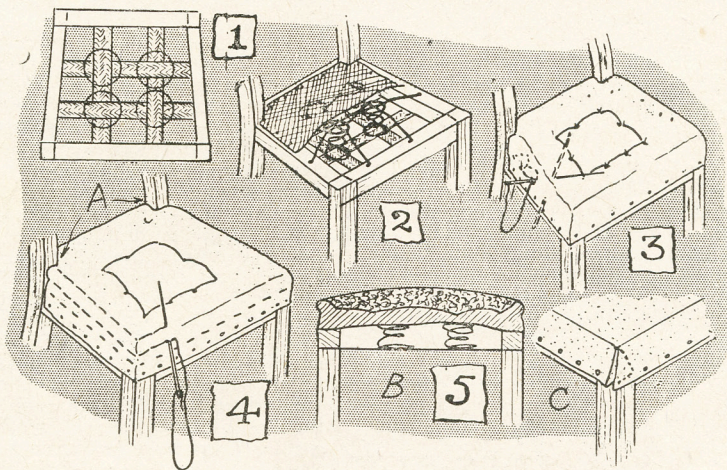
Shift the tops of the springs, as may be necessary, to get them perfectly upright, then, with the curved needle and twine, stitch them in three places each to the canvas. All should now be quite securely in place, and most unlikely to move out of position afterwards.

Thread the needle with a generous length of the twine, and starting from the back corner (at A) in Fig. 4), at $\frac{1}{4}$ in. above the frame push the needle through at an upward angle of 45 degrees and inclined to the right.

Blind Stitching

Draw through until the eye of the needle is just about to emerge, then, with the eye still below the canvas, twist the needle in to the left and push it back through the canvas for it to come out about 2 ins. away from where it entered. This leaves a loop of twine inside, and when drawn tight it forces the stuffing towards the edge. This blind stitching, shown in Fig. 3, should be carried on all round.

A second row of stitching, this time right through, is now to be carried on, to make the actual roll edge. The needle is



Over this a first layer of stuffing is to be worked. Coconut fibre will suit nicely for this, or if a cheap job is preferred, dry hay. Lay this on, and cover it with loose woven canvas, the quality termed scrim is the best stuff to use.

Tack the canvas down each side of the frame, but leave the corners to allow of fresh material being packed in. Get as much round the sides as to leave the surface level all over. Then, with the long needle and twine, stitch right through to form a square of stitches over the middle of the seat, to keep the central part of the stuffing in place. See Fig. 3.

It may be necessary now to pack some additional stuffing round the sides before the operation of making the 'roll' commences. This roll is worked with stitches and makes the seat shapely so that in use it does not become flattened down at the edges. The job is a simple one and is carried out with the long double-eyed needle made for the purpose. Proceed in this manner.

pushed through at the same angle as before, but drawn right through each time, the effect of the line of stitches being to form a round edge all round, as in the detail sketch, Fig. 4.

Even Stuffing

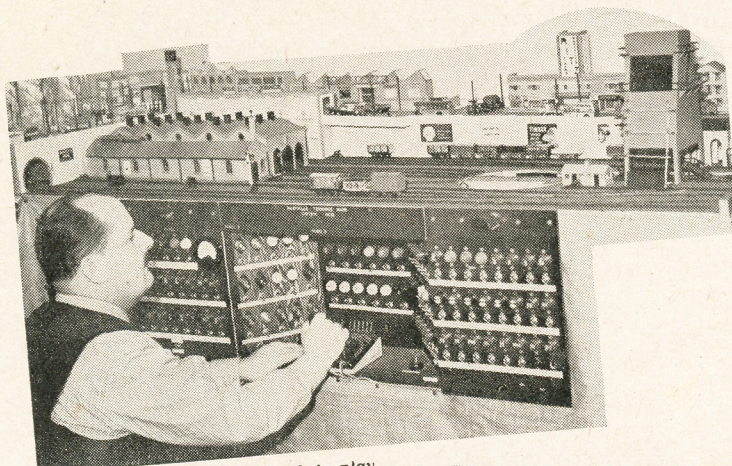
A roll should be roughly the size of the forefinger, and should be quite firm. As the work of stitching this edge proceeds the regulator mentioned should be brought into action to force the stuffing to the edge before it is stitched. The pointed end is inserted in the canvas and the flat end outside rotated with the fingers to work the stuffing where wanted.

It may be added here that the canvas, which should be snipped at corners (A) in Fig. 4, should be well tucked down against the back, and the flat end of the regulator will be of use for the job. It is also useful in folding the stuff at the front corners of the frame as well.

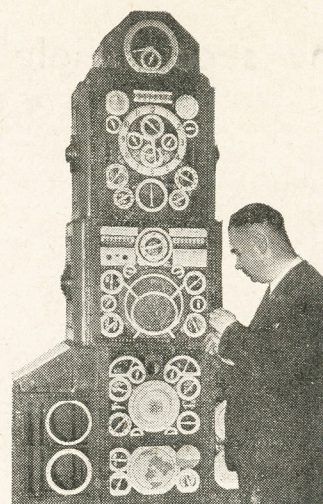
Over the whole the top stuffing is now

(Continued foot of page 234)

HOBBIES IN PICTURES



WHAT a lovely switchboard to play with! A complete suburban town, with pubs., cinema, shops and railway siding, all controlled by switches for light and power. The builder of the model, whom you see in the picture, is Mr. F. Barrett, of Westbury Rd., Walthamstow, who built it accurately to the scale of 4 mm. to 1ft. He has named the town Maryville (after his wife) and hopes to complete another to be Fredricton (after himself). Imagine what a marvellous time one can have regulating a whole town!



THIS fascinating combination of gears represents a four-years' hobby job building a machine which shows the time, day, date, month, year, season, sunset, sunrise, phases of the moon, tides, next eclipse, time anywhere in the world, and astronomical data. The 'Clock' is 8ft. high and was built by a paint-laboratory chemist Mr. Frank Nolan at Becontree, Essex.



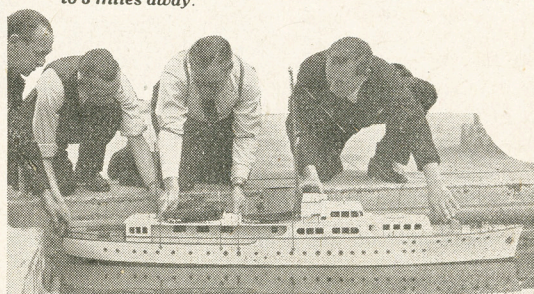
SINCE he returned a few years ago, Mr. H. E. Silk of Lordship Lane, East Dulwich, has devoted almost all his spare time to making models. You see the result above—a fair ground with 26 working models varying from a 6in. high Coconut Shy to a Great Wheel reaching more than 2ft. The roundabout the chairplane each had 18 coats of paint. The fair is equipped with mobile workshop, traction engines, tiny oranges. The work has taken 11 years—but what an exhibition to show for it.



Photo: Burnley Express

A DISPLAY of fretwork which will delight the hearts of our older readers. They will probably remember most of the large beautiful pre-war designs now so impossible to make, owing to shortage of wood. Those shown were made by Mr. W. H. Seymour of Clayton St., Nelson, Lancs. Started 50 years ago and is still as interested at 70 years of age. He used a handframe throughout, and has won over 100 prizes. Next year he hopes to make a picture frame to contain a photograph of himself on his golden wedding anniversary, which occurs shortly. An excellent finale.

THIS 6ft. model is correct to every detail, and steered by remote radio control. No wonder the men are interested! Designed by Mr. Eastaugh (centre kneeling figure)—an attempt will be made to cross the English Channel. It can be controlled from a boat up to 3 miles away.



Keep the merriment going by introducing these CLOWNING PROPERTIES

QUITE a number of readers may have ideas of doing a bit of clowning at amateur shows, garden parties, carnivals, and, in due course, at firms' childrens' parties and so on. Yet all too often, the most brilliant (?) 'gags' these amateurs can think up are the old 'string of sausages' and the imitation red-hot poker.

Let us consider some other, less 'corny' ideas, though the first will be quite a traditional stunt. We have all heard of the term 'slapstick' comedy. The name derives from actual slapsticks. One man whacks another over his posterior, after some mock argument, with a batten of wood. There is a terrific smack. The 'victim' leaps in the air, duly pained.

The Slapstick

This is only a bit of play-acting, however. It is more than likely that he has not even been hit, or if hit, touched but very lightly. The loud crack comes not from the impact of the flat batten on a trousers seat, but from specially made slapsticks (Figs. 1 and 2).

To make, get two pieces of wood, each about 18ins. long and of 1½ins. by ¾in. section, though the actual size does not, within wide limits, matter very much. Cut off about 6ins. of one piece and glue it to the end of the other.

Now get a fairly thick piece of leather; bundles of leather are sold at the stores. The leather is to make a hinge, to secure the loose 12in. piece to the double end. Screws are used, preferably round-headed ones with a washer under the heads. Do not simply nail the leather on. It will soon come off again, as there will be quite a strain on it. Of course, the screws go only through the 12in. piece. This latter can, when hinged, be lifted up.

How to Use

The double end is shaped into a handle as shown, using rasp and glasspaper. After the shaping is done, a couple of screws should be driven through the double handle as the glue alone is probably not sufficient to hold. The screws could not be driven in before the shaping, however, as they might have been in the way. The slapstick is now complete.

To use, pretend to hit someone, keeping the hinged part of the stick to the rear. Bring the stick across as though you intended a hearty whack, but just before it reaches the intended spot, give a sharp backward jerk of the wrist. The hinged part will strike the fixed part with a surprisingly loud crack. A little practice is needed to get the very best results.

Remember—you do not actually hit anyone. Do not use this in a confined space either. As already hinted, this

slapstick gives a tremendously loud crack if properly handled. Some professionals, however, put percussion caps at the inside ends, but we mention this only as a matter of interest.

The Umbrella Joke

The umbrella 'gag' is easy to prepare and work and always gets a laugh. Take a broken-down umbrella and remove the cover. Saw the handle off and throw away the stick part and ribs. Gather up the cover and put a weight in the extreme end (a heavy iron nut, for example). Tie the ends of the 'brolly' to the stick again, or, rather, the end of the shortened handle, just as though the ends were held with an umbrella ring. If the umbrella is held by the handle and the cover kept hanging down, without swinging, it is not easy to detect that it is ribless and stick-less (Fig. 6).

At the psychological moment, the clown takes off his hat (which, of course, is some terrible old wreck) and appears to poke the solid umbrella through the crown (the hat being held opening upwards). The 'brolly', of course, just folds up. If the hat is big enough, the clown can replace it on his head with the

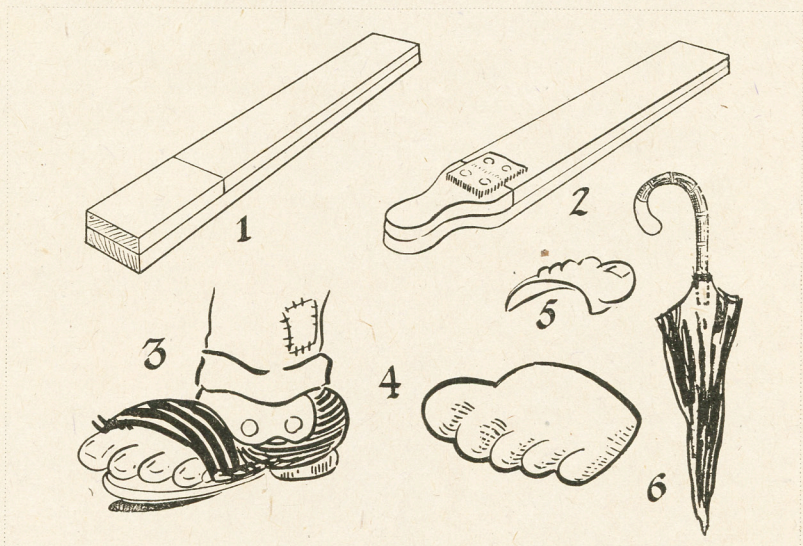
though no boots offered for sale will be in such a condition as that shown in Fig. 3. This wrecking must be done by the amateur clown.

To make the papier mâché toes, a clay model must first be prepared. To economise in clay, the clay can be placed over a wooden foundation. This can be a block of wood about the size and shape of your normal shoe caps. Imagine the shoes chopped clean off at the caps. On this shape, model the toes. Do not try to imitate an art-student making an anatomical study for some academic examination. Make the toes big and bold, and avoid small detail.

Making the 'Toes'

When the model is shaped up (and it must be exaggerated, otherwise you could merely stick your own toes through the old boot), rub some oil over it, and then tear (not cut) some newspaper into pieces roughly 2ins. square. Make up a large bowl of paste—paperhanger's paste is cheap and easily made.

Soak each piece of paper in the paste and apply them all over the top of the model, overlapping slightly, and pressing



umbrella inside, just as Victorian doctors used to carry their stethoscopes inside their top hats.

The Broken Shoe Cap

Another quite good 'gag' is the giant toes peeping out of broken boots (Fig. 3). The toes are only of papier mâché and consist of a hollow portion shaped like that shown in Fig. 4. Fig. 5 shows, on a smaller scale, the fake viewed from behind. Actual old boots are used. These should be the oldest and biggest you can find. A market stall might yield a 'find' in this direction,

them into shape over the curved parts. When you have one layer evenly applied, go over again, this time using a coloured paper (for example, cheap brown paper, a coloured comic paper, etc.).

The idea of using two different kinds of paper is so that one can be sure of building up even layers. If only one kind of paper is used there is no means of knowing if one part is being built up thickly whilst another part is too thin.

Continue building up alternate layers

(Continued foot of page 233)

Make yourself or your friends a present of a LEATHER WRITING CASE

THOSE readers of Hobbies Weekly who like to make their own gifts will find this writing case a very acceptable and useful present. Though the sizes given are those of the writer's own case, they can be altered to suit the reader's own particular needs. The case can be decorated in any way desired—stained, transfers, applique or with a monogram painted on it.

The pockets and pen holders may be varied to suit individual tastes. In choosing leather for the body of the case try and obtain a sheet big enough to do it in one piece although there is no reason why the body should not be of two pieces (even different colours), as they can be jointed down the centre with a covering strip (Fig. 1).

Suitable Glue

The glue used should be of the type that is flexible when dry, so that it will not lose its grip when the leather is bent. Having got the piece for the back, cut to shape carefully and fix the lining chosen. The latter may be of any material desired, or even left out altogether if the leather for the case is attractive enough on the inside. If a loose lining is desired then lightly glue it in place round the edges of the case and put aside to dry. When dry enough to cut, trim carefully.

Next cut a strip of leather $1\frac{1}{2}$ ins. wide

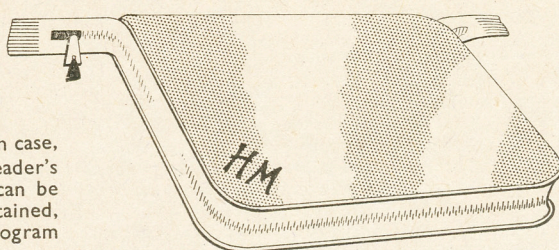


Fig. 1—Main backing of case

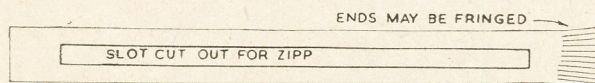


Fig. 2—The strip for the zipp fastener

and 2 ins. longer than the distance round the opening edges of the case, when closed. Obtain a zipp fastener 1 in. longer than the distance round the opening sides, this extra 1 in. being to allow the case to lie flat when opened.

Next, using a safety razor blade, cut a slot in this strip as long as the zipp and about $\frac{1}{8}$ in. wider than the 'teeth' of the zipp (Fig. 2). Do this carefully, otherwise the side of the slot may 'foul' the zipp when in use and anyone who has had to struggle with a jammed zipp will know what that means.

Stitching the Zipp

The zipp is now stitched on to the strip. If any difficulty is found in keeping the zipp and strip slot in correct position, then lightly glue the two together. When allowed to dry the two parts can be stitched together quite easily. The inner fixtures of the case may now be made up and placed into position.

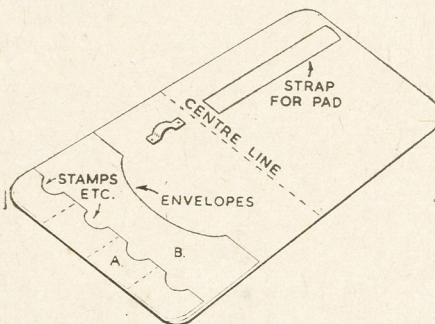


Fig. 3—Inside showing additions

Edges of pockets, etc., that come on to the outer edge of the case are lightly glued. The other parts should be machined stitched into place very neatly (Fig. 3).

There are two methods of fastening the zipp to the body of the case—machine or hand stitching or thonging. When all the parts are dry and ready to assemble, mark the centres of the opening side and also the centre of the zipp strip (Fig. 4). Place the corresponding centre marks together and, using either bulldog clips of small size or large paper clips, ease the strip into position and tack or glue it in place. When thoroughly dry, machine stitch carefully.

Thonging

If thonging is desired various types can be done, two of which are shown in Fig. 5. When starting the thonging the end should be 'whipped' between the first four or five lacings (Fig. 6) and the end fastened off in the same way. To join the leather thong taper the two ends for about 1 in. and glue together. Do not use until set.

Just a word about decorating. If any tooling is to be done, do it on a proper tooling leather (calf, etc.) and slightly dampen the surface before working. It will be found that the leather will respond better to the tooling process.

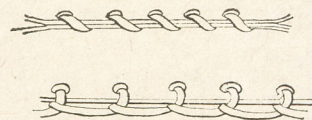


Fig. 5—Two types of thonging



Fig. 6—Lacing at ends

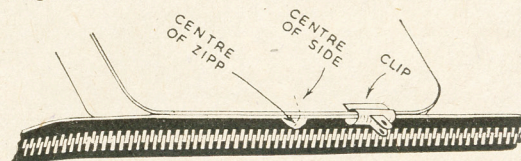


Fig. 4—Fixing the body to the zipp fastener strip

Clowning Properties—(Continued from page 232)

of plain and coloured paper until you have applied about twelve layers, all well pasted. Then leave to dry. Do not attempt to hasten matters by baking in front of a fire, though warmth can be applied after a day or two. When the paper is dry, peel it off the mould or, as usually happens, dig out the mould, and

trim, where necessary with scissors.

Give one or two good coats of size, inside and out, and then paint in flesh colour. This is done by mixing white and yellow with a very little red. The toe nails can be painted a very light blue afterwards.

The whole job is then stitched into

position inside the toe of the real boot. You will need, of course, one mould for each set of toes, right and left.

We have described the making of these giant toes in some detail, as the same principle can be applied to making, for example, false noses and even complete masks.



Casting Lead Toys

I AM interested in making lead soldiers, farm animals, etc., and I have several moulds for this purpose obtained from advertisers in 'Hobbies Weekly'. Unfortunately, however, when my castings are turned out and left to set, instead of becoming hard as required, they are soft and bend very easily. (L.M.—Sittingbourne)

THE reason for the castings being soft is that you are using practically pure lead. To harden it, you must alloy it—that is, make a mixture with such metals as Antimony or Bismuth.

There are many formula; your choice will be decided by the available heat at your disposal. A fairly hard metal can be had by mixing 50 parts lead with 25 parts antimony and 25 parts tin.

The harder metals should be melted first, and the softer metals added; the whole must be well mixed and the surface scum skimmed off before pouring.

Gum Manufacture

I WOULD like to know of a formula for a glue or gum something like that on the back of postage stamps. In other words a glue which would remain dry until watered. (M.M.—Clifton).

THE manufacture of glues and gums is a fairly elaborate and rather technical process, quite beyond the scope of the home worker. For your purpose, however, we suggest you use gum arabic, which is soluble in water, is fairly readily obtainable, and is spread evenly over paper, will dry and remain dry until again watered.

Weather Affecting Crystal Sets

IS it true that a crystal set does not give as good a reception in warm weather as it does in cold? If this is so, is there anything one can do about it in warm weather? (P.P.—Stoneferry).

THE warm weather does not itself cause weaker reception, but conditions generally associated with it do. During darkness, atmospheric con-

ditions favour the propagation of wireless waves, so that dark winter evenings give best long-range results. At the same time, an earth in damp soil is more effective than one in dry soil, and these slight differences are more noticeable on a crystal set.

Actually, the loss is very slight, but during very dry weather, it may sometimes prove slightly helpful to water the soil where the earth is situated, especially if in a very dry spot. Apart from this, nothing can be done. The reduction in summer-time volume is generally so small that no practical difference is made.

Electric Harmonica

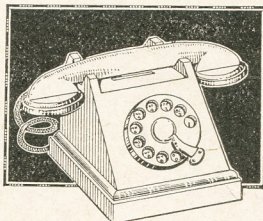
I HAVE a harmonica which I wish to electrify. Can you give me some help as to what type of microphone I must use, and how to attach it? (P.C.—Edmonton).

TO obtain good volume you will require to use an amplifier with at least two valves. Three would be better, and four would be necessary if really loud results are required for other than domestic purposes. A suitable loudspeaker in cabinet will also be necessary.

The type of microphone used is largely a matter of personal preference. A

DIAL TELEPHONE MONEY BOX

This working model of an automatic dial-type telephone can be made as a money box from this week's pattern sheet. Complete kit of wood and rod from Hobbies Branches for 2/9, or post free for 3/6 from Hobbies Ltd., Dereham, Norfolk.



small carbon microphone will give loudest results, but the quality of reproduction is rather less good than with a ribbon or moving-coil microphone. However, the latter types will need rather more amplification to obtain the same volume as that given by the carbon microphone.

If the microphone is to be attached directly to the instrument, extra volume should be obtained and one of the small button-type microphones should prove most suitable, with two thin flexible leads running from it.

Repainting a Pram

I WISH to repaint a child's pram in cream and obtain a high gloss finish. (C.B.—Crumlin).

TO repaint a child's pram, the first thing is to wash it with 'sugar' soap, and follow by washing with clean water and drying off thoroughly. Then apply a coat of 'undercoating' of a white or light cream colour; leave it to dry and harden, then rub down with pumice powder and water.

Wash and dry thoroughly, then apply a coat of 'synthetic' finish colour. Use an undercoat made by the same makers as the synthetic. There are several good brands on the market—to mention one, Robbialac is quite reliable.

The interior could possibly be cleaned by the use of a carpet soap, or any of the proprietary leather revivers such as Meltonian. The peeling of the chromium plating cannot be cured, it will be necessary to remove the metal parts and have them properly re-chromed.

Gun Barrel Preservative

I HAVE a D.B. shot-gun which lately I find is rusting, except for the top of the barrels although it is kept in a canvas cover. I would be much obliged if you would give me a remedy. (D.M.—Templeogue).

THERE are several makes of rust remover solutions on the market, which you could use to wash out the gun barrels; failing that, a paste made of flour emery powder and oil could be used on an improvised ram-rod with a pad of linen or soft leather on the end, and with it you could polish the base of the barrel, but take care to remove all traces of the powder before using the gun. In any case, very carefully examine the gun before using it, in case the rusting has worked through the metal and weakened it.

Home Upholstery—(Continued from page 230)

to be packed down. Horsehair, flock, or whatever is to be used, should be pressed well down with the palm of the hand until it rises at the centre of the seat to a gentle curve, as at the cross section of the completed seat (B), Fig. 5. It should then be covered with a layer of cotton wool, preparatory to receiving its final outer covering.

It will be as well to measure across the seat, both ways, to get the approximate dimensions of the cover, then to cut it a

little larger to allow for trimming. Lay it over and tack at the back. Draw down, and tack to the front, pressing the stuff down with the hand each time. Add more tacks all round until the corners are nearly reached. At the front corners the covering is neatly folded as at (C), Fig. 5, before tacking. At the back corners (A), a small square is cut from each to clear the back legs, then the rest is neatly pressed down between the stuffing and wood, and drawn tightly

down before tacking to the frame at sides and back. The result should be a smooth shapely seat, which will spring to a creaseless curve again when the sitter rises off it.

Finish this time by trimming any surplus material off near the tacks, and nailing a banding or gimp round to hide the line of tacks and the raw edges of the cover. Turn the chair to one side and tack a covering of canvas over the bottom.

Save the household time and worry by making A TIME-TABLE HOLDER



In a great many homes, a bus or train time-table is to be found. It has been said, truly, that the country bus has revolutionized village life more than any other invention or development. The town suburban dweller is often very dependent on the local activities of British Railways. In a small hotel, a set of local time-tables is a sign of good service and efficiency to guests.

But all too often such time-tables are always in the way when not needed, and never to be found when 'I think there's a train in ten minutes time, but where on earth did you put that time-table?' Why not have a container for it? The colourful and attractive little rack for time-tables is very easily made, in one evening, of odd scraps of wood.

The two sketches (of the complete article and of the make-up) show the idea so clearly that not a great deal of detailed explanation is required. It will be understood, of course, that time-tables vary in size. A typical time-table, now on the writer's desk, measures 4in. wide and 7in. deep, but others may be larger or smaller. Thus, definite dimensions cannot be given to cover all possible time-tables.

Local Needs

Obtain copies of those circulating in the district and plan the rack to suit the largest. Assume, too, that space will later be needed for extra time-tables. If the rack is made too generously, however, there is a tendency for it to be cluttered up with out-of-date time-tables.

The back, front and bottom can be cut from $\frac{3}{16}$ in. plywood but the two sides are solid, of $\frac{1}{4}$ in. or more thickness so that they afford good grip for the small panel pins used in assembly.

The chief concern will be for a suitable design to decorate the front. Except by very long odds, this will not be exactly like that illustrated. By keeping one's

eyes open, it may be possible to find a drawing of a bus (or motor coach) on a poster, etc., which may be cut out and used, just as it is. Mount it on the wood with thin glue, and afterwards, give a coat of clear paper varnish.

Suitable Front Picture

Failing a full-size picture, it will be quite easy to find some illustration of a bus and enlarge this, by squaring or with a pantograph, first on to paper and then, when worked up, traced down to the wood and painted in with enamels.

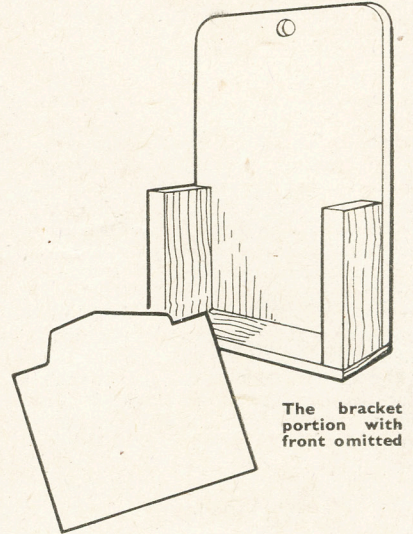
A picture of a train would, of course, be useful in appropriate circumstances, whilst those who like a joke might be able to find, somehow, a picture of a tramp (as in old volumes of *Punch*) or of a hiker thumbing a lift.

There is no need, as far as the utility of the article is concerned, to have a decorated front, but this adds to the attractiveness and, besides, most workers greatly enjoy the decorating stage. Before the decoration is done, the rack is painted all over.

It will be observed that, in the particular example illustrated, the front has a shaped top where the roof of the bus is carried round. This is effective, but in

some cases there could be a plain straight-across top and the picture pasted on lower down.

A hole bored at the top enables the rack to be hung up.

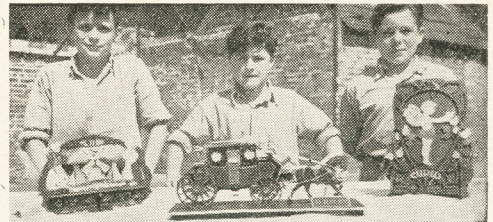


The bracket portion with front omitted

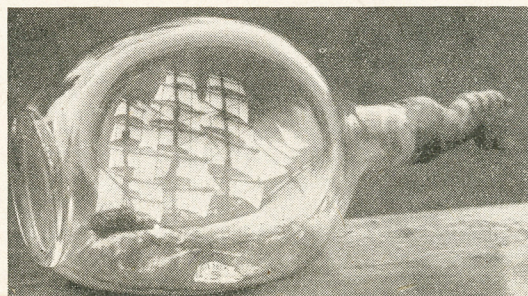
Pictures our Readers Send—

THE picture of the three lads was sent by B. Colman of Presentation College, Cobh, Co Cork, who started fretwork with the boys in January this year. They are now very keen, and

he says "the progress they have made, thanks to your patterns, has surprised everybody". Below you have that ever-popular novelty—the ship in a bottle. This was built, as a result of our article, by J. Arnold of Church Place, Moffat, Scotland, and he is delighted with the result. During his seven years in the army he missed Hobbies very much, but has become enthusiastic again since being "demobbed". He says "I have made eleven old-time ships and don't need to tell you the hours of enjoyment en-



tailed in making them". In these times of bustle and haste, it's a grand relaxation to build these beautiful ships and see each one completed.



There will be occasions when it is worth knowing these HOME CEMENTS

Acid-proof Cement and Tank-lining

AN acid-proof cement which is also very useful for lining the inside of tanks destined to store acid can be made from 9 parts of plaster of Paris, 3 parts of litharge, 75 parts of pitch and 15 parts of beeswax. Ochre can be added as a body if desired.

Petrol-proof Cement

PARAFFIN and graphite mixed into a thick paste and applied to sheet asbestos forms a fine jointing to stand either petrol or petrol fumes. The asbestos sheeting may, of course, be cut to any desired shape, forming a truly intimate contact at high or low temperatures.

Hydraulic Main Cement

CEMENT for high-pressure water mains may be made from litharge 10 parts, plaster of Paris 4 parts, yellow ochre $\frac{1}{2}$ part and ordinary red lead 2 parts—all by weight. The mixture should be used in a putty-like consistency, and finely cut $\frac{1}{8}$ in. lengths of sisal or hemp fibre may be incorporated into the mass if desired.

Threaded Pipe-joint Cement

CLEAN-CUT pipe joints may be rendered water-, gas- and air-tight by smearing them with a thin paste made from boiled linseed oil and red lead.

Microscope Cell Cements

CEMENT for affixing rims to make microscope cells for containing fluid must be adhesive, elastic and capable of standing temperature changes. Such a cement may be made by dissolving clean shellac in beechwood creosote with the aid of gentle heat to form a thick syrupy solution. This cement should be used as thickly as it can be worked to flow from a brush, but can be thinned with the addition of either a little benzole or a few drops of pure alcohol; whilst it is absolutely impervious to water, but not to Canada balsam.

A cement for cells containing oil may be made by dissolving shellac (ground) in naphtha, and printer's ink and old gold-size, made up into a thickish fluid is an excellent cement for 'ringing' cells after mounting.

Heat-resisting Glass Cement

HEAT-RESISTING glass cement may be made by grinding up together $\frac{1}{2}$ oz. of powdered glass and 1 oz. of flourspar (calcium fluoride) until they are reduced to an impalpable powder. This is then mixed with 3 oz. of sodium silicate ('waterglass'), and worked into a smooth paste; which must be applied immediately to the broken edges, as it sets very rapidly. The edges should be carefully cleaned before applying the cement.

Professional Glass-workers Cement

A SMALL quantity of glue (scotch) is placed in a wide-mouthed bottle with just enough water to cover it. After standing for 12 hours, the excess of water is decanted and the glue covered with methylated spirits, placing the bottle in a pan of water and heating until the glue is melted, when a little whiting is stirred into it. The cement is then allowed to cool and a small fragment of gum copal and a larger piece of gum ammoniacum is added. This cement should be warmed before use.

Gelatine dissolved in strong (glacial) acetic acid by placing the container in hot water also makes an excellent glass and china cement which must also be warmed before use.

Stone to Wood Cement

CEMENT for this purpose which must be warmed before use may be made by melting together 4 parts of wood pitch, and 1 part of beeswax, finally stirring into the mixture 4 parts of ground brick-dust or chalk. This cement should be applied thinly to the surfaces to be joined.

Test your woodwork standard in SKILL FOR THE TILL

TO scoop a half-dome hollow in a block of wood so as to make a bowl for money, tin 'checks' and the like, is not one of the easiest jobs even for those who have a lathe, but here is a method that readers can try.

It is, we must admit, designed chiefly as a test in skilled woodwork: for those who like to test their skill in making unusual objects. It can be made any size, limited only by the section of wood available, so that either a really practical bowl, suitable for real trade use can be made, or a small bowl suitable for children's 'shops'.

It is necessary to get wood to the section shown in Fig. 3. The wood can, if necessary (and if available) be quite 6 ins. square in section though, as hinted, smaller stuff can be used. In length it should be rather over four times the length of the side. It may be more convenient to make the shaped section in two pieces so that one can work from either end.

Shaping

The wood is first planed as in Fig. 2, and then shaped as in Fig. 3, using, chiefly, a gouge to complete the shaping. A piece of broken glass used as a scraper will be useful, no doubt. Get a large round bottle and break it with due care. With any luck, one will find a piece that will suit the curve aimed at. It is a good idea to make a cardboard template (shown partly in Fig. 3).

The next step is to mitre four pieces, just like making a picture frame except that, in this case, there is no interior opening. The assembled parts will look like Fig. 1. At this stage there is not a bowl-shaped opening but (if reversed) a kind of vaulted arch,

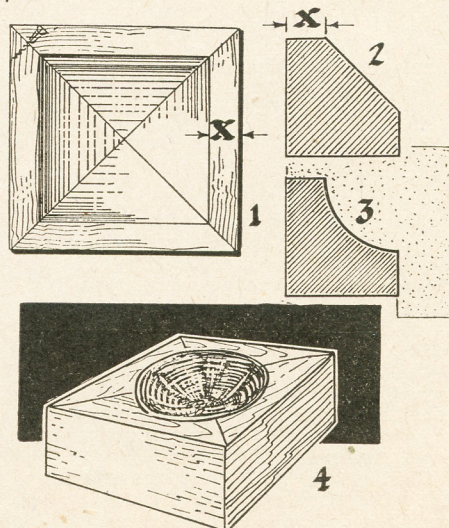
such as is seen in church architecture, etc.

Scooping

With this as a foundation, however, a bowl may be scooped. If a circular opening is needed, however, the distance (X) in Fig. 1 (which is the same as X in Fig. 2) must be quite twice as wide as is shown, otherwise the edge of the bowl will come to the edge of the block.

Before doing the final shaping, screws should be inserted as indicated in the upper left corner of Fig. 1, having them about half-way up the thickness of the wood. Take care they will not foul any subsequent shaping. The heads are hidden with plastic wood.

For the final shaping, a sharp penknife can be used to get to the upper parts. Quite an interesting model, however, is made by leaving it at the Fig. 1 stage.



Think how useful it would be to know about RE-BINDING OLD BOOKS

BOOKS which are in use a great deal, cookery books, reference books, and, perhaps, even more, the children's favourite books, have an unfortunate habit of losing their covers as time goes by, and once the outside cover has come off, torn and lost pages are the almost inevitable consequence. Luckily re-binding is a job which can be done easily and inexpensively, the chief

the book. Now cut a strip of cloth the exact width of the spine but about $\frac{1}{2}$ in. shorter and paste it on, leaving $\frac{1}{8}$ in. bare, top and bottom. Measure the pages of the book carefully and cut two pieces of white paper the length of a page and double its width.

Fold each piece of paper in half, and paste on the underside lengthwise for a $\frac{1}{4}$ in. from the fold and stick to the top and bottom pages of the book re-

wider than the spine of the book, but again $\frac{1}{2}$ in. shorter. Paste this on so it covers the spine and 1 in. of each of the outer end papers (see Fig. 2). The book is now prepared and you can start making the actual cover.

For this cut two pieces of cardboard, $\frac{1}{2}$ in. longer than the pages and $\frac{1}{4}$ in. wider. Then cut a strip of cloth 1 in. longer than the spine and 3 ins. wider. In the centre of the cloth mark off a rectangle the length of the spine (leaving a $\frac{1}{2}$ in. margin top and bottom), and the width of the spine, including the two thicknesses of cardboard. Cut a strip of white paper the exact size of this rectangle and paste it in position on the cloth.

Paste the remainder of the cloth, lay the cardboard on so it lies flush with the paper stiffening, and stick it firmly. Turn down cloth at top and bottom of the spine and stick to the paper.

Covering

Next cut two pieces cartridge paper

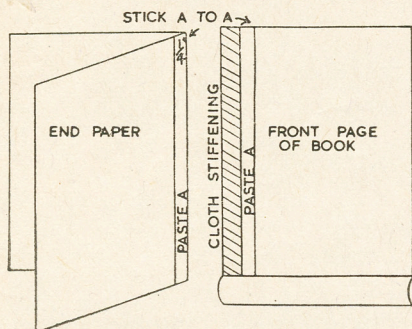


Fig. 1—Marking the end papers and stiffener

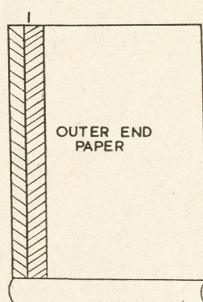


Fig. 2—First stage of work

essentials being neat fingers, really accurate measurements, and plenty of elbow-room in which to work.

The following materials are required. White paper, not too stiff, the type sold for lining drawers answers the purpose well. Paste of the thick white kind. Book-binding cloth; if this is not readily obtainable ordinary casement cloth can be used very successfully. Cardboard. Grey cartridge paper or any similar kind of coloured paper. Ruler, pencil, and pair of scissors.

Backing Cloth

Start by scraping off any bits of glue which may be adhering to the spine of

spectively, to form the end papers (see Fig. 1). Next cut a strip of cloth 2 ins.

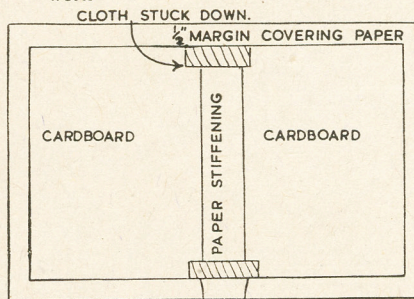


Fig. 3—Marking cover paper and cloth

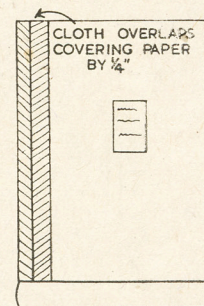


Fig. 4—Name panel

1 in. longer than the cardboard and wide enough to allow $\frac{1}{2}$ in. margin at the front edges and to overlap the cloth by about $\frac{1}{4}$ in. If, for instance, the cardboard measures 8 $\frac{1}{2}$ ins. by 5 $\frac{1}{2}$ ins., the covering paper will measure 9 $\frac{1}{2}$ ins. by 4 $\frac{1}{4}$ ins. Before sticking the covering paper in position, it is a good plan to rule off $\frac{1}{4}$ in. of the cloth at the back and front edges to ensure accuracy, then paste the edges on, smoothing it down well (see Fig. 3). Turn the edges under and stick them neatly to the cardboard. This completes the cover.

Fix it to the book by pasting the outside of the end papers, one at a time, and sticking them to the inside of the cover. Close the book when the first side has been done and turn it over to do the second side. Great care should be taken to avoid wrinkles. The book should now be pressed under a heavy weight for at least 24 hours. Complete the job by printing the title and author's name in indian ink on a rectangular piece of white paper, and sticking it on to the front of the book, or on to the spine, as preferred (see Fig. 4).

A Model Maker's Solder

SOLDERING! One of the most useful processes and yet the one that so many model makers try to avoid.

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This Solder can be used on brass, bronze, cadmium plating, copper galvanised ware, iron, lead, mild steel,

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Particulars of Arax Multicore Solder, together with technical details are contained in a leaflet, a copy of which can be obtained if you mention Hobbies Weekly from Multicore Solders Ltd., Mellier House, Albemarle Street, London, W.1, as can an interesting little folder "Hints on Soldering".

Full Size Patterns for making Model Railway Accessories — see page 229

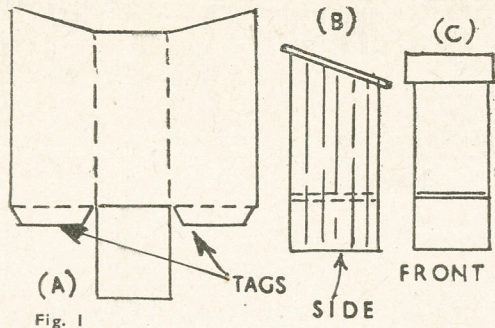


Fig. 1

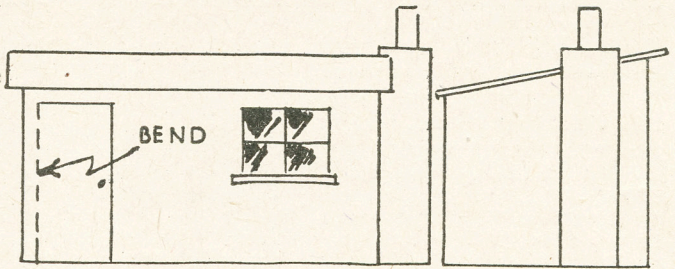


Fig. 2

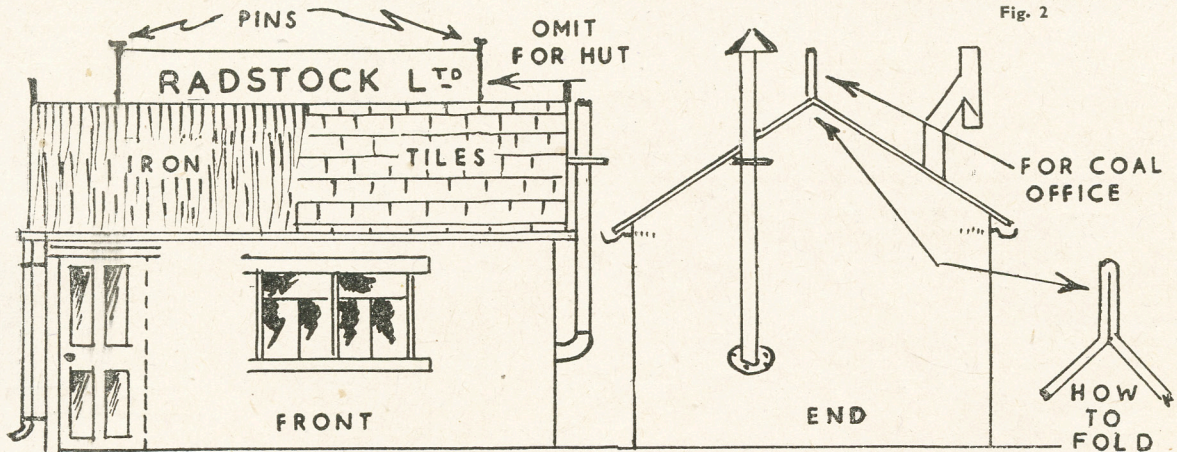
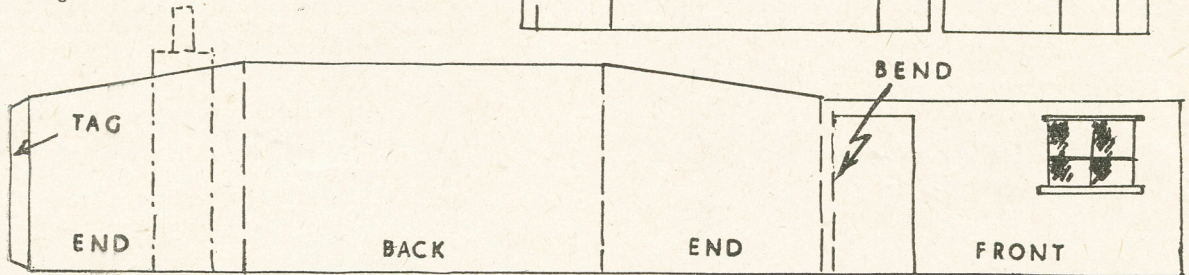


Fig. 3

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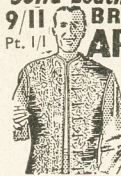
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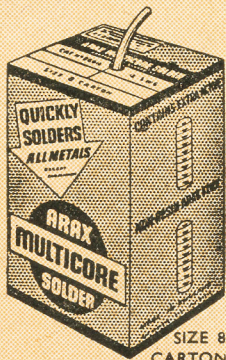
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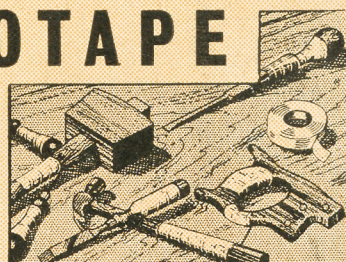


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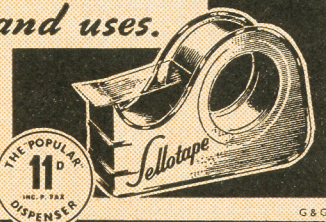
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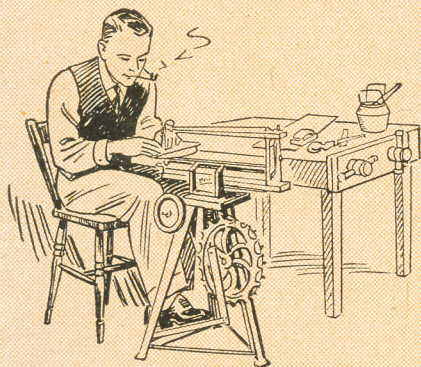
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